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# SUPPORTING INFORMATION FOR PERSPECTIVE ON 3D PRINTING OF SEPARATION MEMBRANES AND COMPARISON TO RELATED UNCONVENTIONAL FABRICATION TECHNIQUES

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Table S1 shows materials manufactured for 3DP under various product name of which the properties were included in Table 1 in the main text.

Table S1. Materials for 3DP.

Material	Company	Product Name
<b>Polymer</b>		
<b>ABS</b>	Allied photopolymers	KZ-1850-CL, KZ-1850-ICE, KZ-1860-CL, KZ-1862-ICE, KZ-1870-WH
	EnvisionTEC	E-Shell 200, E-Shell 200 M, ABflex, ABS 3SP Flex, ABS 3SP Superflex, ABS 3SP Tough, ABS B31 (M-TYPE), ABS Flex Series, ABS-tuff, D3 M
	3DXTech	3DXMax Premium ABS MG-94, 3DXTech ABS, iOn ABS/Nylon
	Bolson Materials	ABS (P400), ABS P430, ABSmax
	Filoalfa	ABS Filoalfa
	Stratasys	ABS-ESD7, ABS-I, ABS-M30, ABS-M30i, ABSplus, RGD5130-DM, RGD5131-DM, RGD5160-DM, RGD5161-DM
	Form Futura	ABSpro, EasyFil ABS, ClearScent ABS
	3D Systems	Accura ABS White (SL 7810), VisiJet CR-WT, VisiJet M3 X, VisiJet SL Black
	OO-Kuma	CF0 Carbon Fiber Reinforced ABS, Performance ABS
	Kevvox	Cool Grey, Translucent Orange
	DSM Somos	PLASTCure ABS 3650, Somos NeXt LV, Somos ProtoGen 18120, Somos ProtoGen 18120, Somos ProtoGen 18420, Somos ProtoGen 18920
	Orbi-Tech	smartABS
<b>PLA</b>	Taulman 3D	In-PLA
	Form Futura	EasyFil PLA, MagicFill Thermo PLA
	ColorFabb	PLA/ PHA
	Proto Pasta	Conductive PLA, High temperature PLA
	3DXTech	3DXTech PLA
	OO-Kuma	Elite PLA
	Polymaker	PolyMax PLA, PolyFlex
	BnK	Purement
<b>PA</b>	Taulman 3D	618 Nylon, 645 Nylon, PCTPE, 680 Nylon, 910 Alloy

Material	Company	Product Name
	Arzauno	Arzauno PA2200
	3D Systems	DuraForm PA
	Stratasys	FDM Nylon 12
	ALM	PA 606-FR, PA 640-GSL, PA 650, PA 840-GSL, PA 850 Black, PA 850-Nat, PA 860, PA D80-ST, TPE 210-S, FR 106, PA 250
	Hunan Farsoon	FS3200PA
	Exceltec	Innov'PA 1350_Etx, Innov'PA 1450_Etx, Innov'PA 1550_Xs, Innov'PA 2550_GBAL, Innov'PA 3450_GBx
	3DXTech	iOn ABS/Nylon
	Mark Forged	Nylon FFF
	EOS	PA 2200, PA 2201, PA 2002 Black, PA 2210 FR, PrimePart FR PA 2241 FR, PrimePart Plus PA 2221, PA 1101, PA 1102 Black, PA 2105, PA 2200
	CRP Technology	Windform FX, Windform LX 2.0
	TreeD	BioMyde
PET	Form Futura	HDglass, PET by FormFutura
	MadeSolid	PET+
	Taulman 3D	t-glase
TPE	Form Futura	FlexiFil
	EOS	PrimePart ST PEBA 2301
	OO-Kuma	True FLEX
PC	3D Systems	Accura 60, VisiJet CR-CL, Visijet SL Clear
	Stratasys	PC, PC-ISO
	DR3D Filament	PC LEXAN
PEI	Arevo	Ultem
	Stratasys	ULTEM 1010, ULTEM 9085
PP	Stratasys	DurusWhite RGD430
	3D Systems	Accura 25, Accura SL 7840, VisiJet M5-Black, VisiJet SL Flex
	EnvisionTEC	R11, R5, Superflex, Superflex 3SP, Superflex M
	Kevvox	Ocean Blue (LC 130), Biege (LC 120)
	DWS	DL350
	DSM Somos	Somos 9110, 9120, 9420
	Diamond Plastics	Laser PP CP 22
ASA	Stratasys	ASA
PEEK	EOS	EOS PEEK HP3, OXPEKK OXFAB
	Arevo	PEEK F1
PPS	Stratasys	PPSF
	Arevo	Radel
Acrylic	Stratasys	Endur RGD450, RGD525, RGD720, VeroBlackPlus RGD875, VeroBlue RGD840, VeroClear RGD810, VeroCyan RGD841, VeroGray RGD850, VeroWhitePlus RGD835, VeroYellow RGD841, YellowMagenta RGD851
	3D Systems	VisiJet Dentcast, VisiJet Pearlstone, VisiJet Stoneplast,
PMMA	Voxeljet	PMMA- Polypor B, PMMA-Polypor C
Oxycetane	D-Mec	SCR950
HDPE	Diamond Plastics	Laser HDPE HX 17
Rubber	3D Systems	DuraForm Flex, TangoBlack FLX973, VisiJet CF-BK
	Stratasys	TangoBlack FLX973, TangoBlackPlus FLX980, TangoGray FLX950, TangoPlus FLX930
Silicone	EnvisionTEC	E-Silicone

Material	Company	Product Name
	CMET	TSR-510
TPU	Filoalfa	FiloFlex 43D
	FFF World	FlexiSmart
HIPS	3DXTech	3DXTech HIPS
	Filoalfa	HIPS Filoalfa
	TreeD	Stiron HIPS
PVA	Form Futura	Porolay Lay-Fomm
Epoxy	CMET	TSR-829, TSR-831, TSR-832, TSR-839, TSR-880, TSR-883, TSR-884B, TSR-890, HS-690, HS-696, TSR-821
	D-Mec	SCR802, SCR9120, SCR11120, SCR701, SCR710, SCR735, SCR740, SCR751
<b>Composite</b>		
ABS-PC	Proto Pasta	PC-ABS Alloy
	Stratasys	PC-ABS
ABS-Carbon	OO-Kuma	CF0 Carbon Fiber Reinforced ABS
ABS-PP	3D Systems	DuraForm EX, VisiJet M5-X, VisiJet SL Impact, VisiJet SL Tough
	Asiga	Plas, PlasCLEAR
ABS-PBT	DSM Somos	Somos 14120, Somos GP Plus 14122, Somos WaterShed XC 11122
ABS-Acrylic	DSM Somos	Somos WaterClear Ultra 10122
ABS-PA	3DXTech	iOn ABS/Nylon
PLA-SS	Proto Pasta	Stainless steel PLA
PLA-Iron	Proto Pasta	Magnetic Iron PLA
PLA-carbon	Functionalize	F-Electric
	3DXTech	3DXMax CFR Carbon Fiber Reinforced PLA Filament
	Proto Pasta	Carbon Fiber PLA
PLA-wood	OO-Kuma	Wood-fill PLA
PLA-Graphene	Graphene 3D Lab	Conductive Graphene Filament
PA-Carbon	EOS	CarbonMide
	Hunan Farsoon	FS3400CF
	ALM	PA601-CF, PA802-CF
	CRP Technology	Windform SP, Windform XT 2.0
PA-Glass	3D Systems	DuraForm GF
	Hunan Farsoon	FS3400GF
	EOS	PA 3200 GF
	ALM	PA 415-GS, PA 614-GS. PA 615-GS. PA 616-GS
	CRP Technology	Windform EL, Windform GF 2.0, Windform GT
PA-Metal	EOS	Alumide
	ALM	PA 605-A
PC-ABS	Proto Pasta	PC-ABS Alloy
PVA-TPE-Rubber	Form Futura	Gel-Lay
PVA-Rubber	Form Futura	Lay-Fomm
PVA-TPE	Form Futura	Porolay Gel-Lay, Lay-Felt
PETG-Carbon	3DXTech	3DXNano ESD PETG + Carbon Nanotube Filament
<b>Ceramics</b>		
Gypsum	EnvisionTEC	E-Denstone, E-Denstone M
Zirconia	Lithoz	LithaCon 3Y 610 Purple (ZrO <sub>2</sub> )
Alumina	Lithoz	LithaLox HP 500 (Al <sub>2</sub> O <sub>3</sub> )

Material	Company	Product Name
<b>Metals/ Alloys</b>		
<b>Steel</b>	Sandvik	17-4PH, 18Ni300, 304L, 316L, 4140, 4365, 440C, 8620, D2, H13, M2, SAF2507, SKD-11
	ExOne	316 Stainless Steel Infiltrated with Bronze, 420 Stainless Steel infiltrated with Bronze
	Concept Laser	CL 20ES (Stainless steel 1.4404), CL 50WS (Hot-work steel 1.2709), CL 91RW (Stainless hot-work steel)
	EOS	EOS Maraging Steel MS1, EOS StainlessSteel 316L, EOS StainlessSteel GP1, EOS StainlessSteel PH1
	LPW Technology	LPW 155 (15-5PH), LPW 174 (17-4PH), LPW 1V, LPW 316 (316L), LPW 4140, LPW H13, LPW M2, LPW M300 (18Ni300)
	SLM Solutions	SLM Solutions 1.2344 (H13), SLM Solutions 1.2709, SLM Solutions 1.4404 (316L), SLM Solutions 1.4540 (15-5PH)
	Optomec	Stainless Steel 13-8, Stainless Steel 15-5PH, Stainless Steel 17-4, Stainless Steel 304, Stainless Steel 309, Stainless Steel 410, Stainless Steel 416, Stainless Steel 420, Stainless Steel AM355, Stainless Steel 316, Tool Steel A-2, Tool Steel H13, Tool Steel S7
	Fabrisonic	Stainless Steel 304, Stainless Steel 309, Stainless Steel 316
	3D Systems	Maraging steel
<b>Titanium</b>	Arcam	Arcam Grade 2 Titanium, Arcam Ti6Al4V, Arcam Ti6Al4V ELI
	EOS	EOS Titanium Ti64, EOS Titanium Ti64ELI
	Optomec	CP Titanium, Ti 48-2-2, Ti 6-2-4-2, Ti 6-2-4-6, Ti22Al23Nb, Ti6Al4V
	Renishaw	Renishaw Ti6Al4V
	SLM Solutions	SLM Solutions Pure Titanium, SLM Solutions Ti 6AL 4V, SLM Solutions Ti 6AL 7Nb
	Fabrisonic	Titanium CP, Ti3Al2.5V (Grade 9)
	Concept Laser	CL 40TI ELI (TiAl6V4 ELI)
	LPW Technology	LPW CpTi, LPW Ti6242, LPW Ti64 (AMS 4998), LPW Ti64 Gd23, LPW Ti64 Gd5
<b>Silver</b>	Concept Laser	Silver Alloy (930 sterling)
	Fabrisonic	Sterling Silver (30% Cold Work)
<b>Gold</b>	Cookson Gold	18K 5N Rose Gold, 18K 3N Yellow Gold
<b>Nickel</b>	EOS	EOS NickelAlloy IN718, EOS NickelAlloy HX, EOS NickelAlloy IN625, EOS NickelAlloy IN718
	Optomec	Inconel 625, Inconel 690, Inconel 718, MarM247, Rene 142, Waspalloy, Hastelloy X
	Renishaw	Renishaw Inconel 718
	SLM Solutions	SLM Solutions Inconel 625, SLM Solutions Inconel 718, SLM Solutions Inconel HX
	Concept Laser	CL 100NB (Inconel 718)
	ExOne	Alloy IN 625
	Sandvik	IN718
	LPW Technology	LPW 263, LPW 276, LPW 625, LPW 718, LPW 77, LPW H230, LPW WASP, LPW X-2LC
<b>Cobalt</b>	Arcam	Arcam ASTM F75 CoCr Alloy, Arcam ASTM F75 CoCr Alloy
	EOS	EOS CobaltChrome MP1, EOS CobaltChrome SP2
	Optomec	Cobalt Stellite 21
	SLM Solutions	SLM Solutions CoCr ASTM F75
	Concept Laser	CL 110CoCr (Cobalt-chromium alloy F75), Remanium star CL
	Sandvik	F75, F90

Material	Company	Product Name
	LPW Technology	LPW 509, LPW 64, LPW 800, LPW Co6, LPW CoCr-2LC
	3D Systems	CoCrMo Alloy
Aluminum	Fabrisonic	Aluminum 1100-H18, Aluminum 2219-O, Aluminum 3003-H18, Aluminum 5052-O, Aluminum 6061-O, Aluminum 6061-T4, Aluminum 7050-T7651, Aluminum 7075-T6
	Optomec	Aluminum 4047
	Concept Laser	CL 30AL (AlSi12), CL 31AL (AlSi10Mg)
	EOS	EOS Aluminum AlSi10Mg
	LPW Technology	LPW 6061, LPW 7050, LPW 7075, LPW AlSi12
	Renishaw	Renishaw AlSi10Mg
	SLM Solutions	SLM Solutions AlSi10Mg, SLM Solutions AlSi12, SLM Solutions AlSi7Mg
	3D Systems	Aluminium Alloy AlSi12
Iron	ExOne	Iron Infiltrated with Bronze
Copper/ Bronze	Fabrisonic	EPT Copper 110 (1/2 Hard), Pure Copper (99.9)
	Sandvik	Cu10Sn (Sandvik), Cu10Mn3Ni (Sandvik)
	Optomec	Copper GRCop-84, Copper- CuNi
	Concept Laser	CL 80CU (Bronze)
	LPW Technology	LPW Cu